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**SULFIDE CONTROL SERVICES**

## **HYDROGEN PEROXIDE**

## **SAFETY MANUAL**

**Vulcan Peroxidation Systems, Inc.  
4514 Parkbreeze Court  
Orlando, FL 32808**



***Peroxidation Systems Inc***

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**Vulcan Peroxidation Systems, Inc.**  
**4514 Parkbreeze Court**  
**Orlando, FL 32808**  
**1-800-749-7376**

## TABLE OF CONTENTS

<b>PURPOSE</b> .....	1
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### **SAFE STORAGE AND HANDLING**

Safety Check List .....	2
Spills .....	4
Fire .....	4
Repairs .....	4

### **FIRST AID**

Skin Contact .....	5
Eye Contact .....	5
Ingestion .....	5
Inhalation .....	5

### **MATERIAL SAFETY DATA SHEET (MSDS)**

## **PURPOSE**

The purpose of this manual is to prevent accidents while using 50% hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) and to provide guidelines for the safe operation of Vulcan Peroxidation Systems'  $\text{H}_2\text{O}_2$  storage and dosing systems.

$\text{H}_2\text{O}_2$  is a strong oxidant and knowing the potential hazards and first aid will prevent accidents.

The availability and quick use of **LARGE AMOUNTS OF WATER** in case of a spill or physical contact cannot be overemphasized.

If there are any questions about any procedure described in this manual, please call:

**VULCAN PEROXIDATION SYSTEMS, INC.**

**24-hour Emergency Phone**

**1-800-749-7376**

## **SAFE STORAGE AND HANDLING**

### **Safety Check List**

1. Clean and free of debris.
2. Well lighted.
3. Secure.
4. No strong alkalies such as lime or ammonia, wood, paper, oil, organic solvents, or combustible materials stored in area.

### **Water Supply**

1. Adequate (minimum 3/4" supply line).
2. Clean, free from contaminants.
3. Connected to a safety shower and eyewash.
4. Permanently connected to a hose for wash down purposes.
5. Checked weekly to insure that lines are clear and safety equipment is operative.

### **Personal Safety Equipment**

1. Hard hat with face shield or hard hat with eye goggles.
2. Butyl or vinyl gloves.
3. Rubber boots.
4. Slicker suit.

### **Storage Tanks**

1. Surface cool to touch.
2. Contents not bubbling.

*If the storage tank is hot to touch and/or the contents are bubbling, cool the outer surface with water and notify Peroxidation Systems, Inc. immediately!!*

3. Tank labels should be clearly visible.
4. Hatch covers should be securely fastened.
5. Fittings and piping should be free from leaks.
6.  $H_2O_2$  *must never* be stored in or transferred to a container that has been used for any other purpose.

***IN CASE OF A LEAK, TURN OFF PUMPS, WASH DOWN ANY SPILLAGE WITH LARGE AMOUNTS OF WATER AND NOTIFY PEROXIDATION SYSTEMS, INC. IMMEDIATELY!!***

### **Spills**

1. Use **LARGE AMOUNTS OF WATER** to wash down any spillage.
2. **DO NOT** attempt to recover any spillage.
3. **DO NOT ALLOW** contaminated clothing to dry. If organic material is allowed to dry, fires due to spontaneous combustion may occur.

### **Fire**

1.  $H_2O_2$  is **NOT FLAMMABLE**. It is a strong oxidizing agent that will support combustion.
2. In case of fire, **USE WATER ONLY! DO NOT USE** foam or chemicals.
3. In case of fire near storage tanks, cool the surface of the tanks with water.
4. Provide tank locations, MSDS sheets, and a copy of these procedures for your local fire department.

### **Repairs**

1. **BEFORE MAKING ANY REPAIRS**, put on appropriate safety gear and turn on wash down water.
2. All materials used must be:
  - a) Hydrogen peroxide compatible
  - b) Cleaned and passivated to meet PSI standards. Call for instructions.
  - c) **USE CAUTION** to avoid accidental contamination.

## **FIRST AID**

### **Skin Contact**

1. **WASH IMMEDIATELY WITH LARGE AMOUNTS OF WATER.**  
There should be no problem except for whitening of the skin and a tingling sensation for up to 2-3 hours.
2. Remove contaminated clothing. Do not allow contaminated clothing to dry.
3. Seek medical attention for burns.

### **Eye Contact**

1. **FLUSH WITH WATER FOR AT LEAST 15 MINUTES (MINIMUM)!**
2. Seek medical attention.

### **Ingestion**

1. Drink large amounts of water.
2. Seek medical attention.

### **Inhalation**

1. Put on respirator.
2. Move victim to fresh air.
3. Seek medical attention.



# MATERIAL SAFETY DATA SHEET

## SECTION I.

## PRODUCT AND COMPANY IDENTIFICATION

**VULCAN PEROXIDATION SYSTEMS INC. (VPSI)**

**HYDROGEN PEROXIDE 50% (H<sub>2</sub>O<sub>2</sub>)**

5151 East Broadway, Suite 600

Tucson, Arizona 85711 (602) 790-8383; 1 (800) 552-8064

Revised: November 29, 1994

## SECTION II.

## COMPOSITION/INFORMATION ON INGREDIENTS

Product Name:	Hydrogen Peroxide 50%	Composition:	Hydrogen Peroxide	50%
Chemical/Synonyms:	H <sub>2</sub> O <sub>2</sub> /Peroxide		Water	50%
Chemical Family:	Inorganic Peroxide		Stabilizers	Trace
C.A.S. Number:	7722-84-1	UN Number:	2014	Toxicity Data: 90% H <sub>2</sub> O <sub>2</sub> Oral LD <sub>50</sub> : 2 mg/kg (mouse)

## SECTION III.

## HAZARDS IDENTIFICATION

Emergency Assistance: Chemtrec 1-800-424-9300	Hazard Rating  Least 0      Slight 1  Moderate 2    Extreme 4  High 3	Health	2
Flash Point & Method Used: NA		Fire	0
Flammable Limits (% Volume In Air): Non-Flammable		Reactivity	1

## SECTION IV.

## EMERGENCY AND FIRST AID PROCEDURES

**Skin/eyes:** Flush with large amounts of water for at least 15 minutes. Quickly remove contaminated clothing and shoes. Flush clothing with large amounts of water. Contact a physician in case of eye contact with peroxide.

**Ingestion:** Drink large amounts of water to dilute. Sit upright. Contact physician.

**NOTE TO PHYSICIAN:** It may be advisable to insert a gastric tube to relieve or prevent increased pressure that may result from the rapid evolution of oxygen upon decomposition.

**Inhalation:** Remove victim to fresh air. Contact a physician.

## SECTION V.

## FIREFIGHTING AND ACCIDENTAL RELEASE MEASURES

**Extinguishing Media:** Water

**Special Fire Fighting Procedures & Precautions:** Wear protective clothing and self-contained breathing apparatus.

**Unusual Fire & Explosion Hazards:** Strong oxidizer Hydrogen peroxide is not flammable but can initiate spontaneous combustion of paper, wood, cloth, and other organic materials. Ignition may be rapid, but can be delayed for several hours. Rapid oxygen evolution from decomposing hydrogen peroxide may increase the intensity of a fire.

Oxygen enrichment of poorly ventilated organic atmospheres increases the potential of vapor phase explosions.

## SECTION VI.

## HANDLING AND STORAGE

- 1) Avoid heating hydrogen peroxide and store away from combustibles.
- 2) Do not contaminate hydrogen peroxide.
- 3) Storage containers/vessels for hydrogen peroxide must be vented and made of compatible plastics, 304 or 316 stainless steel, or high purity aluminum. Contact VPSI for additional information regarding other compatible materials.



**Peroxidation Systems**

Vulcan Peroxidation Systems Inc., a Vulcan Chemicals Company

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**SECTION VII.****EXPOSURE AND PERSONAL PROTECTION**

**Respiratory Protection:** Self-contained breathing apparatus should be available.

**Protective Clothing:** Adequate eye protection, rubber gloves and boots, PVC slicker suit.

**Additional Protective Measures:** Water source and safety shower/eye wash should be located close to where  $H_2O_2$  is handled.

Exposure to skin or eyes may cause chemical burns. Inhalation of vapor or mist may cause irritation or chemical burns to mucous membranes and respiratory system. Ingestion may cause chemical burns as well as injury by distention of the esophagus or stomach due to the sudden evolution of gasses.

**SECTION VIII.****PHYSICAL AND CHEMICAL PROPERTIES**

Boiling Point (deg °F):	237 @ 760 mm Hg	Melting Point (°F):	-61	Vapor Pressure (mm Hg.):	18 @ 86°F
Specific Gravity ( $H_2O=1$ ):	1.195 @ 68°F	Evaporation Rate (Butyl Acetate = 1):	Less than 1	Vapor Density (Air = 1):	NA
Solubility In Water:	Complete	% Volatile By Volume:	100	Appearance & Odor:	Clear, colorless liquid. Concentrations over 35 % may have sharp odor.

**SECTION IX.****STABILITY AND REACTIVITY**

**HYDROGEN PEROXIDE** solution is stable. It does not polymerize. Contamination by many substances including heavy metals and their salts, reducing agents, strong oxidizers, alkalies and particulate solids will cause decomposition. The rate of decomposition increases with increasing temperature and may be very vigorous with rapid generation of large volumes of oxygen and steam. Consult VPSI on handling and materials of construction.

**Hazardous Decomposition Products:** Oxygen, steam, peroxide vapor, and heat.

**SECTION X.****OCCUPATIONAL EXPOSURE LIMITS/TOXICOLOGICAL INFORMATION**

ACGIH - TLV - TWA - 1 ppm

OSHA - 8 hour time weight average (TWA) = 1 ppm

**SECTION XI.****DEPARTMENT OF TRANSPORTATION REQUIREMENTS**

DOT Classification: Class 5: Oxidizer

DOT Proper Shipping Name: Hydrogen Peroxide Aqueous Solution (40 to 60 %)

**SECTION XII.****REGULATORY INFORMATION**

Contains stabilizers and promoters compatible for use with for the perox-pure™ UV/Hydrogen Peroxide chemical oxidation process.

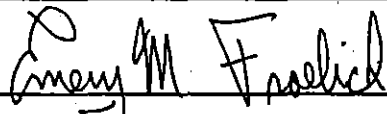
FDA - Food grade hydrogen peroxide must meet Food Chemical Codex specifications.

**SECTION XIII.****DISCLAIMER**

The information and recommendations contained in this Material Safety Data Sheet are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This Material Safety Data Sheet was prepared to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200). In no case shall Vulcan Peroxidation Systems Inc. be liable for consequential, special, or indirect damages resulting from the use or handling of this product.

APPROVALS:

SAFETY DIRECTOR



VULCAN PEROXIDATION SYSTEMS INC.

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